

REMARKS

Claim status; basis for claim amendment and new claims

Applicant herein amends claim 1 and introduces new claims 150-155. The amendments and new claim find basis in the claims as originally filed and in the specification throughout. Representative basis is on page 13, lines 17-27, page 42, lines 21-23, page 44, lines 17-19, page 65, lines 15-17, and examples 8, 10, 12 and 14 of the specification, for example. Accordingly, no prohibited new matter is introduced by entry of the amendment and new claims herein. Claims 1, 2, 4-49, 51-54, 58-60, 63-76, 128, 145, 148, 149, and 150-155 are pending.

Summary of outstanding claim rejections

The Office rejected claims in the outstanding action for alleged obviousness, which is summarized hereafter:

- i. Claims 1, 2, 4-17, 19-27, 29-39, 43-49, 51-54, 58-60, 63, 64-70, 73-76, 128 and 145 were rejected under 35 U.S.C. 103(a) for alleged obviousness over Koster and Cantor;
- ii. Claim 28 was rejected under 35 U.S.C. 103(a) for alleged obviousness over Koster in view of Cantor and further in view of Weiss;
- iii. Claims 71-72 were rejected under 35 U.S.C. 103(a) for alleged obviousness over Koster in view of Cantor and further in view of Sanghvi; and
- iv. Claims 148 and 149 were rejected under 35 U.S.C. 103(a) for alleged obviousness over Koster in view of Cantor and in further view of Fu.

The claim amendment and new claims herein are introduced solely to expedite prosecution without prejudice or disclaimer of any previously claimed subject matter. Applicant has not dedicated or abandoned any unclaimed subject matter and has not acquiesced to any rejections or objections made by the Office by introducing the amendment and new claims herein. Applicant expressly reserves the right to pursue prosecution of any presently

excluded or cancelled subject matter or embodiments in one or more future continuing patent applications.

Rejection for alleged obviousness

Claims 1, 2, 4-17, 19-27, 29-39, 43-49, 51-54, 58-60, 63, 64-70, 73-76, 128 and 145 were rejected under 35 U.S.C. 103(a) for alleged obviousness over Koster and Cantor. Claim 28 was rejected under 35 U.S.C. 103(a) for alleged obviousness over Koster in view of Cantor and further in view of Weiss. Claims 71-72 were rejected under 35 U.S.C. 103(a) for alleged obviousness over Koster in view of Cantor and further in view of Sanghvi. Claims 148 and 149 were rejected under 35 U.S.C. 103(a) for alleged obviousness over Koster in view of Cantor and in further view of Fu. The rejections respectfully are traversed in their entirety, including all reasons and rationale for the rejections, and Applicant submits that the rejections are inapplicable to the claims herein.

Independent claim 1 and independent claim 154 are directed to a method for sequencing a target nucleic acid molecule using a nucleic acid array. Fragments of the target nucleic acid hybridized to the array are released from the array and analyzed by mass spectrometry. Claim 1 specifies that the nucleic acids released from the array are not labeled. Claim 154 specifies that the nucleic acids released from the array consist of nucleotides.

Support for independent claims 1 and 154 can be found throughout the specification, for example on page 13, lines 17-27.

The Office cited Cantor in all outstanding rejections. Cantor, however, alone or in combination with other cited documents does not teach or suggest mass spectrometry analysis of released fragments that are not labelled or consist of nucleotides. Cantor instead discusses mass spectrometry detection of the labels linked to nucleic acids hybridized to arrays .

For example, Cantor states “[l]abels may be directly or indirectly detected using scintillation fluid or a phosphorImager, chromatic or fluorescent labeling, or mass spectrometry,” in column 7, lines 32-34. Cantor also states “the target nucleic acid has a first detectable label at a terminal site and a second detectable label at an internal site. It is also preferred that the first and second detectable labels are chromatic or fluorescent chemicals or molecules which are detectable by mass spectrometry,” in column 9, lines 56-

60. And issued claims 16, 25, and 36 specify “wherein the first and second labels are detectable by mass spectrometry.”

Cantor never discloses, teaches or suggests the application of mass spectrometry to an array where fragments released from the array are not labelled or consist of nucleotides. A user having read Cantor would be lead to use targets with labels and to detect the labels by mass spectrometry.

Koster does not remedy these defects. Koster does not disclose, teach or suggest the application of mass spectrometry to the nucleic acid arrays claimed herein.

None of the other cited documents alone or in combination cure the defects of Cantor. Applicant therefore respectfully requests that the Office withdraw the rejections of claims 1, 2, 4-49, 51-54, 58-60, 63-76, 128, 145, 148, and 149 under 35 U.S.C. 103(a).

CONCLUSIONS

In view of the foregoing amendments and remarks, Applicant respectfully submits that the Office can properly withdraw the outstanding claim rejections and that the pending claims herein are in condition for allowance. Applicant therefore respectfully requests that the Office withdraw the outstanding claim rejections and issue a notice of allowance.

In the unlikely event a fee calculation document or other pertinent document is separated from this submission and the Office determines that an extension and/or other relief is required, Applicant petitions for any required relief, including extensions of time, and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. **50-3473**.

Respectfully submitted,

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